

ectomy for patients with adenomatous parathyroids is to be discouraged except perhaps in patients with familial hyperparathyroidism or multiple endocrine adenomatosis.

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## Cutaneous Melanoma

MELANOMA ORIGINATING in the skin is the most serious of cutaneous malignant diseases. The incidence is increasing in the white race, but fortunately so is the cure rate due to treatment at an earlier stage of disease. Genetic factors, possibly actinic radiation and some chemicals are among the possible causes. Melanoma develops from melanocytes at the site of a preexisting mole in 50 percent to 75 percent of cases. Trauma with infection tends to bring the lesion to the attention of the patient. Prevention focuses on screening out ultraviolet irradiation and removing suspicious moles.

Histopathologists have differentiated three main types of cutaneous melanoma: lentigo maligna, superficial spreading melanoma and nodular melanoma. The third type carries the worst prognosis, especially when ulcerated. Other more rare subtypes include melanoma arising in a giant hairy nevus or a blue nevus and in the volar-subungual region (acral lentiginous melanoma).

Two methods of microstaging have become widely used and valuable in estimating prognosis. With the availability of the methods of staging, treatment modifications have been developed that allow for less radical treatment in early stages and a more rational use of radical surgical treatment in more advanced stages.

Clark (1969) proposed a microstaging system that depends on the level of invasion. Level I invasion involves epidermis alone, progressing to level V, in which tumor penetrates all layers of dermis to involve underlying subcutaneous tissue. Breslow (1970 and 1975) microstaged melanoma by measuring the maximal tumor thickness.

The most accurate prognostic information is obtained by first measuring tumor thickness, then the level of invasion. This technique is widely used to guide the extent of treatment to the primary tumor and regional nodes.

In clinical stage I (tumor confined to primary site), these two measurements plus location have allowed division of cases of melanoma into three risk categories for the primary tumor (that is, low, intermediate and high risk). Using these same categories one can estimate the chances of occult regional metastasis and select those patients whose prognosis might be improved by regional node dissection.

All patients with enlarged suspicious regional nodes in the absence of distant metastasis should have radical regional node dissection. The development of local recurrence and satellitosis on an extremity is best managed by hyperthermic regional perfusion with chemotherapeutic agents to control local disease and avoid amputation. Major amputation is occasionally still indicated and may prolong survival. When distant metastasis occurs such as to the lung, surgical removal of the metastatic lesion for diagnosis may result in cure.

Administration of presently available chemotherapeutic agents, singly or in combination, leads to a partial response in only a small percentage of patients (about 20 percent).

Immunotherapy alone or combined with chemotherapy may be useful as an adjuvant therapy in treating high-risk melanoma patients. More effective chemotherapeutic drugs and further advances in immunology and immunotherapy will be needed before results can be improved in disseminated melanoma.

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## Stapling Instruments in General Surgery

ALMOST 75 years have passed since the first stapling instrument to be used in general surgery was introduced in 1908 in Budapest by the combined efforts of Victor Fischer, a surgical instrument designer, and Humer Hultl, a prominent surgeon of that Hungarian city. Aladar von Petz, another surgeon working in Budapest, made modifications and improvements on the original and his instrument of 1920 was still in use through the fifth and sixth decades of this century. The Russians are generally acknowledged as improving these instruments in the 1950s and, with the additional modifications of M. M. Ravitch, their use has spread and they have become widely utilized in the United States.

The stapling procedure, both in closing bowel and in anastomoses, involves placement of double, overlapping rows of B-shaped fine wire staples. The particular shape of the staple insures an adequate blood supply to the bowel edge. The initial acceptance and success of the gastrointestinal anastomosis (GIA) and the thoracoabdominal 30-mm, 55-mm and 90-mm (TA 30, 55 and 90) instruments in facilitating division, closure and anastomosis of various portions of the gastrointestinal tract were followed by the development of the end-to-end anastomosis (EEA) and intraluminal stapler

(ILS) circular anastomotic instruments and finally the production of all of these in a disposable form. The EEA and ILS instruments, in particular, have been beneficial in that very low colorectal anastomoses can now be done in patients who previously had to have abdominoperineal resections. Additional applications have been found for these circular staplers in upper colon, gastric and esophageal procedures.

Other stapling devices have received somewhat less widespread acceptance, for example, ligating and dividing staplers, fascial staplers and skin staplers.

It has been claimed that stapled anastomoses can be done more rapidly and with less effort on the part of the surgeon than the hand-sewn ones, and thus they are a financial saving because of decreased operating and anesthesia time. Reportedly they lead to better and more rapid healing because of the more adequate blood supply to the edge of the bowel and less trauma from the multiple manipulations of hand sewing. It is also claimed that stapled anastomoses lead to a shorter, less complicated postoperative course from ileus, anastomotic leaks and so forth. Several studies report, however, that operative times and complication rates between the two techniques are not proving to be significantly different. Perhaps these will change as surgeons and surgical teams gain more facility and experience in the use of these instruments.

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## Digital Video Subtraction Angiography and Peripheral Vascular Surgical Procedures

PERIPHERAL VASCULAR SURGERY and contrast radiography have shared an important and essential relationship. Whether it be aortic, femoral or carotid arterial occlusion, an endarterectomy or bypass procedure is seldom done without prior angiographic delineation. Despite its widespread usage, arteriography continues to involve a small but potentially serious incidence of adverse complications through embolism or thrombosis, which can lead to limb loss or stroke. For this reason, the diagnostic study of arterial diseases has been supplemented by a vast and rapidly growing noninvasive vascular diagnosis industry. As yet, noninvasive techniques lack precise definition and have not replaced angiography.

Recent developments in computerized digital video subtraction angiography have virtually eliminated the more serious risks of arteriography by avoiding intra-arterial catheterization. The method originally described by Robb and Steinberg in 1939 has been supplanted by more recent advancements in computer technology. This new technique essentially separates and amplifies

the signal from iodine contrast medium injection to the artery, resulting in improvement of image resolution and obviating the need for intraarterial catheterization. The basic process involves storage of the image of the arterial field in digital memory before injection of the contrast medium. Subsequent images following iodine dye injection are sequentially subtracted by computerized digital video image processing. The subtracted images of the arteries thus obtained are enhanced by the contrast medium and the final displayed image is available on video tape or on a standard photograph. The radiation exposure is comparable to standard angiography. Although relatively minor defects such as patient motion, dye extravasation or inadequate venous access may require refinement, this technique, by providing precise arterial definition, is now practical, acceptable clinically and shows promise in areas of vascular diagnosis currently primarily screened by non-invasive studies.

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## Home Parenteral Nutrition

HOME PARENTERAL NUTRITION has become a readily available and effective therapy for a select group of patients who might otherwise die or be disabled for lack of a functional small intestine. Originally introduced by Scribner and Cole in 1970 as an "artificial gut," the technique has since been reported in more than 500 patients—neonatal through geriatric—and is no longer considered experimental.

Candidates for home parenteral nutrition include well-motivated patients who have massive small bowel resection, radiation enteritis, intractable small bowel fistulas, severe small bowel mucosal disease, pseudo-obstruction and some adults and many children with intractable Crohn's disease. Before home parenteral nutrition is begun, patients should be evaluated for surgically correctable disease and considered for home enteral nutrition.

The standard treatment has three stages. First, total parenteral nutrition is initiated in hospital until metabolic parameters are stable. Second, thorough instruction is given to the patient or parents in aseptic technique, details of the infusion and potential complications. The third phase is outpatient management. Though initial stabilization and teaching are still probably best done at a medical center with a multispecialty team committed to maintaining a home parenteral nutrition program, patients usually return home for long-term management.

Though catheter-related sepsis remains a problem, advances in vascular access techniques and solution